MAKER: Team UAV Quadcopters

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Dr. Jack is not the author. This abstract has been submitted on behalf of Rishav Roy Chowdhury, Sachin Vidyasagaran, Ritin Raveendran, Pulkit Khemka - VIT University, Vellore, India.

Team UAV Quadcopters

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Abstract

The main aim of the project is to build a quadcopter which can autonomously perform functions such as surveying, aerial photography, mapping, payload dropping, etc. In addition to this a live feed can be seen through a camera mounted. The project aims at building quadcopters. One of the main features we incorporate in our drones is making them autonomous. This enables them to carry out missions without any human intervention like autonomous payload dropping. This is done using a GPS Module and compass connected to the flight controller which allows the quadcopter to accurately (with a margin of 1m) determine its position.

Our quadcopters are fitted with High Definition cameras which enable us to perform functions such as aerial photography as well as surveying, mapping, object tracking and feature recognition and much more using image processing techniques, etc. Also, we are able to relay a live feed of the on-board camera to a computer screen or TV. We have also implemented automatic landing gears using an Arduino Nano and HC-SR04 ultrasonic sensor.

A telemetry system fitted on our quadcopter which relays information like altitude, ground speed, airspeed, etc. In addition to this the ground station is able to change flight modes during flight. It also includes safety features like Return to Launch when it loses connection with the transmitter or goes beyond a predefined geofence.